A few comparisons with results obtained by other experimenters will be of interest:

W. H. Dines (1889–1893)[1] found (1) that the pressure on a flat plate decreased very little when the angle changed from normal (0°) to 45°; (2) that a self-adjusting helicoid anemometer was slightly affected by changes of direction while an air meter was considerably affected, both instruments underregistering in a wind of variable direction; (3), a pressure-tube anemometer was not affected by changes of 15° to 20° from a mean direction.

Experiments at Blue Hill Observatory (1892–93)[2] showed that "windmill" anemometers carried by vanes 80 to 120 centimeters in length recorded correctly at low and moderate velocities (below 10 m./s.) but underregistered at an increasing ratio at higher velocities, the deficiency amounting to about 20 per cent at 30 m./s. The same anemometers, on wide vanes 30 to 50 centimeters in length, recorded correctly at all velocities.

Prof. Marvin (1899)[3], while testing Robinson anemometers on a whirling machine, found that the indications of a kite anemometer making one rotation for each meter of wind were not seriously affected when the axis of the instrument deviated continuously as much as 20° from the vertical, the average of several experiments being about 4 per cent, or practically within the usual range of variation found among anemometers of the Robinson type under similar conditions.

Further results of this work are awaited with interest.—*S. P. Fergusson.*

BRIGHTNESS OF THE UNCLOUDED SKY.[4]

By M. UIBE.

[Reprinted from *Science Abstracts*, Sect. A, November, 1920, §1410.]

Describes a form of portable photometer designed for comparing the brightness of different parts of the sky. The two parts to be compared illuminate a photometer of the Lummer-Brodhun contrast type, and equality of brightness in the photometer is obtained by varying the thickness of a layer of liquid placed in the path of one of the beams of light. This liquid consists of an aniline neutral grey solution, but for light reductions of large ratio gray glasses are employed. The author has used the apparatus for determining the distribution of brightness of the clear sky as seen from a height of some 3,000 meters in Teneriffe.—*J. W. T. W.*

SPECTROPHOTOMETRY OF SKY LIGHT.[5]

By D. PACINI.

[Reprinted from *Science Abstracts*, Sect. A, December, 1920, §1552.]

Described a prolonged spectrophotometric study of the light from the sky under various conditions, as seen from Sestola (1090 meters above sea-level). The observations were made with a photometer employing an acetylene flame as standard. Curves are given for the relative intensities throughout the visible spectrum for the light from the zenith and various parts of the sky, at different times of day from dawn onwards, and under conditions of cloudiness, misty and dull. The light was found to be selective, having a decided preponderance of blue. It also appears that a very pronounced reduction in the extreme violet is associated with the condensation of aqueous vapor.—*J. W. T. W.*

[1] *Quarterly Journal, Royal Met. Socy*, various papers, 1889–1893 and *Proc. Royal Society*, vols. 48 and 50.
[2] *Annals*, Harvard College Obsy., vol. XL, Pt. IV, 1896.
[3] MONTHLY WEATHER REVIEW, February, 1900.
[4] Sachs. Akad. Wiss. Abhandl., Math. Phys. Klasse., 1918, 35:219.
[5] Soc. Spettros. Ital., Mem. 8, July–August, 1920, pp. 62–79.

COLOR AND POLARIZATION OF SKY LIGHT.[6]

By A. GOCKEL.

[Reprinted from *Science Abstracts*, Sect. A, November, 1920, §1377.]

Using a polarimeter fitted with Wratten filters, the polarization of the light from the sky is investigated for various parts of the spectrum. The intensity of the light was also measured after each observation of polarization. In the paper the results and methods of other authors are fully discussed, but the writer's own results are chiefly that on a clear atmosphere the differences in the polarization of individual colors are smaller than the errors of observation. With increasing turbidity, however, the polarization in the short wave lengths exceeds that in the long, but where, through diffraction, little or no blue can originate, as in the neighborhood of the sun and in a damp layer, the excess is with the long wave part of the spectrum.—*M. A. G.*

551.52(048)

RELATION BETWEEN THE ABSORPTION OF SOLAR RADIATION BY THE ATMOSPHERE AND THE POLARIZATION OF DIFFUSE SKY LIGHT.[7]

By A. BOUTARIC.

[Reprinted from *Science Abstracts*, Sect. A, Dec. 1920, § 1539.]

Finds that corresponding to an increase in the absorption of solar radiation by the atmosphere there is a corresponding decrease in the proportion of diffuse skylight polarized. The result is based on observations made at Montpellier on cloudless days, using the compensation pyrheliometer of K. Ångström and a Cornu polarimeter. Observations of humidity at the surface were also made on the same days. The portion of the sky chosen for the polarimetric observations was that 90° from the sun in the same vertical circle, this being the region of maximum polarization. The result was verified for observations (1) on the same day, comparing observations at time symmetrically placed with respect to noon; (2) on days close together, comparing observations at the same hour of the day; (3) on days belonging to different months, comparing observations at times corresponding to an equal thickness of atmosphere traversed by the solar radiation; (4) for corresponding days of different years. If on two occasions the conditions as to humidity are very different there may be an apparent exception, since this affects the observed intensity of radiation, but not the polarization. Further, in (3) a small correction is necessary for the effect on the intensity of radiation of the varying distance of the earth from the sun. It is suggested that there is a relation appropriate to a given station and possibly the same for all stations of the same altitude, of the form $I=f(d, t, P, f)$, where I is the intensity of solar radiation received at the earth's surface, d the distance of the sun from the earth, t the thickness of atmosphere traversed by the solar radiation, P the polarization, and f the vapor pressure in the air. t and P are of greater importance than d and f. In a further part the relation between absorption of direct and polarization of scattered radiation is studied as a laboratory experiment.—*M. A. G.*

[6] Ann. d. Physik, June 8, 1920, 62:283-292.
[7] Jour. de Physique, July, 1920, v. 9, pp. 239-256.